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PSYLLIDAE IN THE COLLECTION OF THE OSAKA MUSEUM OF NATURAL HISTORY, WITH DESCRIPTION OF A NEW SPECIES (HEMIPTERA: HOMOPTERA)*

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In the present paper, the author reports the results of the studies on the Psyllidae in the collection of the Osaka Museum of Natural History. This collection, mostly made by Mr. I. HIURA, comprises 32 species, one of which has been unrecorded from the Japanese fauna and another one is new to science, and contains many interesting data. All the specimens studied are deposited in the Osaka Museum of Natural History, except for two paratypes of new species described in this paper, which are kept in the collection of the Entomological Laboratory, Kyushu University and in the author's collection.

Before going further, the author wishes to express his sincere thanks to Mr. Y. TSUTSUI and Mr. I. HIURA of the museum for enabling him to study the interesting materials and publishing the results, and also to prof. K. YASUMATSU and Prof. Y. HIRASHIMA of Kyushu University for their kind guidance in the course of the present study. His deep thanks are also due to Dr. V. F. EASTOP of the British Museum (Nat. Hist.) for sending the specimens of some European psyllids for comparison study.

Subfamily APHALARINAE

Aphalara calthae (LINNÉ, 1761)

Specimens examined: 3♂♂ 11♀♀, Sodegaura, Wazima, Ishikawa Pref., Honshu, 8.

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x. 1960, I. Hiura leg. 3♂♂ 6♀♀, Iwanadome—Tokugô (alt. 1400-1600 m.), Shimashima V., Nagano Pref., Honshu, 12. vii. 1960, I. Hiura leg. (on "Janinjin" - *Cardamine impatiens* L.).

Cardamine impatiens is not supposed to be the host plant of the nymphs, but the food plant of the adults.

Aphalara fasciata KUWAYAMA, 1908

Specimens examined: 7♂♂ 2♀♀, Okuura, Tomooku, Kaifu, Tokushima Pref., Shikoku, 25. x. 1962, I. Hiura leg. 1♂, Katsube, Toyonaka, Osaka Pref., Honshu, 3. v. 1962, I. Hiura leg. 1♀, Minowa, Toyonaka, Osaka Pref., Honshu, 3. v. 1962, I. Hiura leg.

Aphalara itadori (SHINJI, 1938)

Aphalara itadori (Shinji, 1938), Kontyu, 12(4): 149 (*Psylla*).

Specimens examined: 2♂♂ 11♀♀, Iwanadome (alt. 1200 m.), Shimashima V., Nagano Pref., Honshu, 12. vii. 1960, I. Hiura leg. (on "Itadori" - *Polygonum cuspidatum* SIEB. et ZUCC.). 1♂, Tokugô, alt. 1600-1800 m., Shimashima V., Nagano Pref., 12. vii. 1960, I. Hiura leg. 3♂♂ 2♀♀, 13. vii. 1960; 1♂, 15. vii. 1960; Hirayu Spa, Gifu Pref., Honshu, I. Hiura leg. 1♂ 2♀♀, Midagahara, Mt. Tateyama, Toyama Pref., Honsyu, 11. x. 1959, I. Hiura leg. 1♀, Dokumizu—Ohtanigawara, alt. 2200-2000 m., Mt. Norikura—Hirayu, Gifu Pref., Honshu, 16. vii. 1960, I. Hiura leg. 1♂, Mt. Iwawaki, Osaka Pref., Honshu, 18. v. 1957, Y. Shibata leg. 3♀♀, Hattani, Nose, Osaka Pref., 5. v. 1960, I. Hiura leg. 3♀♀, Mt. Iwawaki, Osaka Pref., 22. v. 1960, I. Hiura leg. 3♀♀, Hiraoka—Kuragari Pass, Osaka Pref., Honshu, 23. viii. 1963, I. Hiura leg. 2♀♀, Iwase, 18. vi. 1962; 1♀, Shimanotani, 12. vi. 1962; Kawachi-nagano, Osaka Pref., Honshu, I. Hiura leg. 1♂, Mt. Ikoma, Osaka Pref., Honshu, 16. viii. 1963, I. Hiura leg. 1♀, Todoroki-taki, Kaifu-gun, Tokushima Pref., Shikoku, 24. x. 1962, I. Hiura leg. 1♀, 26. vii. 1953; 1♀, 2. viii. 1953; Kône, Jinryo-mura, Tokushima Pref., Shikoku, I. Hiura leg.

Ordinarily, the species found on "Itadori" - *Polygonum cuspidatum* throughout in Japan has been identified as *Craspedolepta nebulosa* (ZETTERSTEDT, 1828) (referred from *Aphalara*) from Europe for long time by the Japanese specialists, KUWAYAMA (1908) and SASAKI (1954), etc. and *Aphalara itadori* (SHINJI, 1937) has been considered as the synonym of the former species. As the result of comparing the numerous Japanese specimens collected on *Polygonum cuspidatum* with the European ones of *C. nebulosa* loaned from the British Museum (Nat. Hist.) lately, the author came to the conclusion that *Aphalara itadori* is the distinct species and conspicuous-

ly different from *Craspedolepta nebulosa,* although similar in the wing maculation. Moreover, this Japanese species without any doubt does not belong to *Craspedolepta* in the several characters, e. g. the clypeus developed into a characteristically elongated tubular structure and protruded at an angle in front of the head, but to *Aphalara.*

Craspedolepta artemisiae (FÖRSTER, 1848)

Specimens examined: 9♂♂ 21♀♀, Hirayu Pass (alt. 1400-1600 m.), Gifu Pref., Honshu, 14. vii. 1960, I. Hiura leg. 1♀, Hirayu Spa, Gifu Pref., Honshu, 13. vii. 1960, I. Hiura leg.

Craspedolepta hiurai sp. nov.

(Fig. 1, A~I)

♂: General colour yellow to yellowish brown, without any distinct dark stripes on dorsum of thorax, sometimes brownish on praescutum near anterior margin; eyes brown or dark brown; ocelli yellow to orange; antennae whitish, with segments I and II yellow, with segment X dark brown to black; abdominal segments somewhat greenish; apices of male forceps and apical spines of posterior tibia and proximal segment of posterior tarsus black. Forewings membranous and nearly transparent, but slightly flavous usually; veins yellow.

Head rather small, but distinctly wider than thorax, scarcely deflexed; vertex rather flat, usually on same plane of pronotum, in dorsal aspect (Fig. 1, B) with posterior margin slightly incised, with anterior margin produced cephalad into rounded lobes on either side of median line and between eyes and antenna, nealy half as long as wide on median line, without pubescence, with shallow depressions posteriorly on either side of median line; genae slightly swollen never producing into cones but projecting forward into two rounded epiphyses or lobes under antennal insertions; frons elongated pyriform, with anterior ocellus located at its extreme tip, anterior ocellus usually visible from above (Fig. 1, B & C); clypeus more or less globose, not prominently protruded at an angle in front of head, with a long hair ventrad (Fig. 1, D); occiput large, visible from above; eyes globose, and projecting from the sides of head; antennae short and rather stout, about 3/4 as long as width of head, with 2 apical setae, relative length of antennal segments as follows: 3:2:6:3:3:3:3:3:2:2 (Fig. 1, E).

Thorax rather flat, scarcely arched, not pubescent; pronotum large, half as long as vertex, narrower than head, with anterior margin produced cephalad around center, so that pronotum appeared ⌒-shaped, with very shallow lateral depressions, rounded laterally; epimeron and episternum distinctly separated rather perpendicularly by pleural suture; praescutum small, slightly over twice as long as pronotum; scutum gently

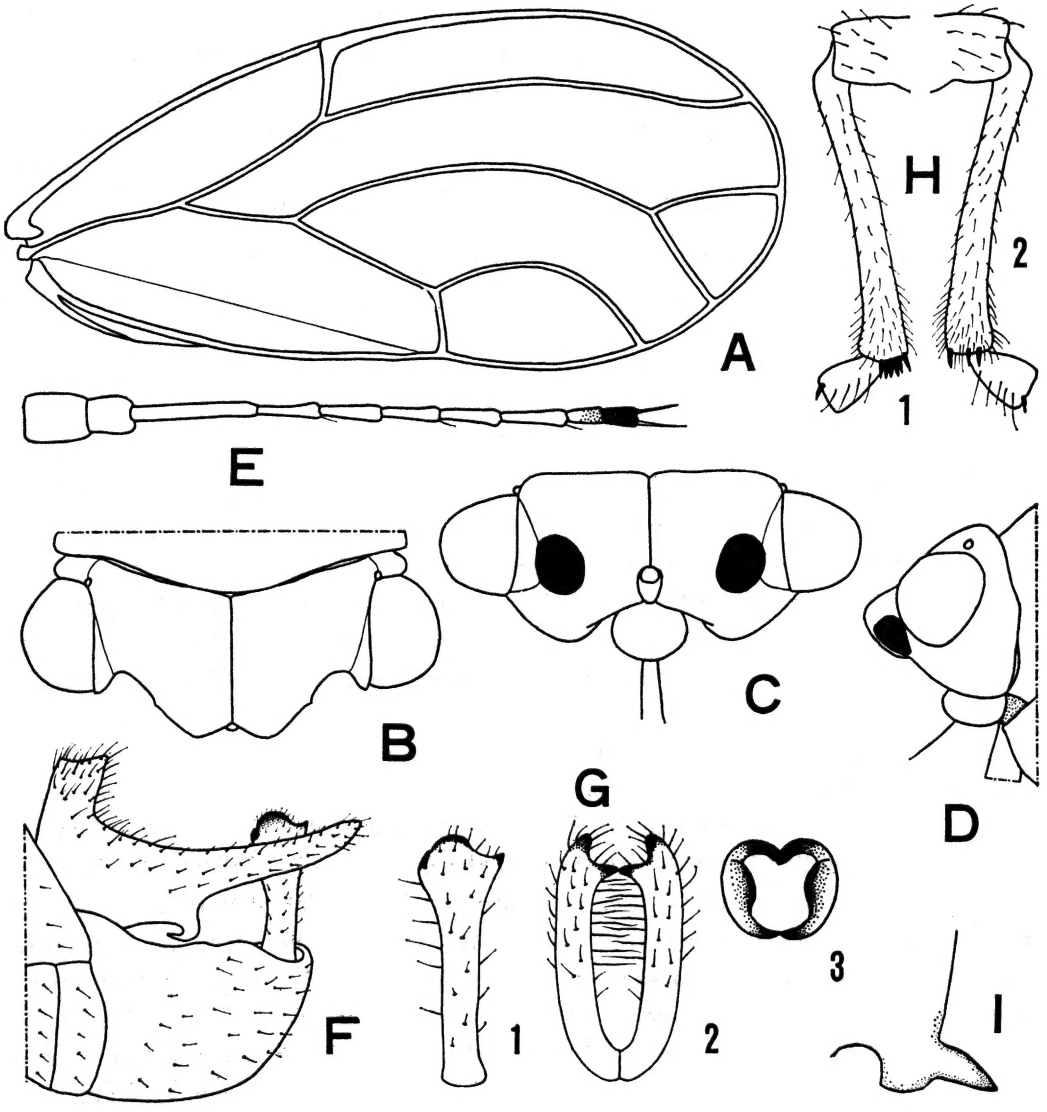

Fig. 1. ***Craspedolepta hiurai*** sp. nov.

A. Forewing. B. Head (antennae excluded), dorsal aspect.
C. Ditto, frontal aspect. D. Ditto, lateral aspect.
E. Antenna. F. Male genitalia, lateral aspect.
G. Forceps: 1. lateral aspect, 2. caudal aspect, 3. dorsal aspect.
H. Posterior tibia and proximal segment of tarsus: 1. inner side, 2. outer side.
I. Meracanthus.

arched, one and half times as long as praescutum, with lateral membranous projection posteriorly; scutellum somewhat rectangular, about 4×5. Legs stout, hairy; anterior and middle femora short and swollen; posterior tibia without basal spur, with 2 outer and 6 inner apical spines; proximal segment of posterior tarsus with a pair of apical spines (Fig. 1, H); meracanthus rather long, acute apically, projected obliquely ventro-caudad (Fig. 1, I). Forewings short and ovate, broadly rounded at apex, about 2.1 times as long as wide; pterostigma absent; veins rather stout; C+Sc slightly thickened, without conspicuous pubescence anteriorly; Rs and M gently sinuate, Rs slightly upturned apically; relative length of veins R, M+Cu, Cu, Cu_2, M_{1+2} and M_{3+4} as 15 : 11 : 13 : 6 : 13 : 12; medial cell very small, appeared nearly equilateral-shaped; cubital cell much larger than median, somewhat quadrilateral (Fig. 1, A). Abdomen (excl. genital segments) small, shorter than thorax, pubescent ventrally.

Male genital segments comparatively large, almost as long as the rest of abdomen or slightly longer, normally developed into typical form in Aphalarinae (Fig. 1, F); proctiger shortly pubescent, extended laterally into a long, horizontal process which is attenuate in the apical half and slightly upturned apically and with a large hook-like epiphysis ventrally; forceps nearly as long as proctiger, in lateral aspect slender basally and enlarged apically, with both anterior and posterior margins sinuate, with long pubescence on inner surface, strongly trilobate and sclerotized at apex, anterior lobe rather sharp and subacute, strongly curved mesad, median lobe broadly rounded, slightly curved mesad apically, posterior lobe sharp and acute at apex, curved mesad at a right angle and touched with opposite one (Fig. 1, G—1), in dorsal aspect median lobes widely separated and both anterior and posterior lobes touched, so that making four-angled space among them, in caudal aspect both forceps nearly parallel to each other, scarcely curved mesad apically, with posterior lobe projected horizontally (Fig. 1, G—2); subgenital plate in lateral aspect large, distinctly higher than forceps, sparcely pubescent, with dorsal margin sinuate, with ventral margin strongly convex.

♀: unknown.

Length of body ♂ 1.5 - 1.6 mm. (to tip of folded wings ♂ 2.3 - 2.4 mm.); length of forewing ♂ 1.8 - 1.9 mm. (width of forewing ♂ 0.8 mm. or slightly over); length of antenna ♂ 0.8 mm.

Distribution: Japan (Honshu).

Holotype (♂): Tsurutaike, Yajima, Yuri, Akita Pref., 29. vii. 1959, I. Hiura leg. (preserved in the collection of the Osaka Museum of Natural History).

Paratypes: 3♂♂, same data as the holotype (preserved in the collections of the Osaka Museum of Natural History and the Entomological Laboratory, Kyushu University, and in the author's collection).

Host plant: unknown.

Differs from *Aphalara flava* KUWAYAMA in being conspicuously smaller, in having the forewings broadly rounded apically (narrowly rounded in *flava*) and with the medial cell much shorter than that of *flava* and nearly equilateral-shaped, and the forceps of male genitalia not greatly enlarged cephalad and caudad in the apical half as in *flava*.. Differs from *artemisiae* (FÖRSTER) in having the forewings subhyaline and without numerous dark spots.

Subfamily LIVIINAE

Diraphia jesoensis (KUWAYAMA, 1908)

Specimens examined: 4♂♂ 8♀♀, Aoyama Pass, Iga—Ise, Mie Pref., Honsyu, 19. vi. 1960, I. Hiura leg. 1♀, Ichinotorii—Yoshikawa, Nose, Osaka Pref., Honshu, 30. v. 1960, I. Hiura leg.

Subfamily PAUROPSYLLINAE

Paurocephala chonchaiensis BOSELLI, 1929

Specimens examined: 1♀, Shimanotani, Kawachi-nagano, Osaka Pref., Honshu, 12. vi. 1962, I. Hiura leg. 1♀, Jinryo, Tokushima Pref., Shikoku, 26. vii. 1953, I. Hiura leg. 1♀, Yamakawa, Kagoshima Pref., Kyushu, 24. v. 1953, I. Hiura leg.

This is the first record of this species from Honshu and Shikoku in Japan, and Honshu can be recognized as the northernmost distribution of this species.

Subfamily PHACOSEMINAE

Anomoneura mori SCHWARZ, 1896

Specimens examined: 10♂♂ 9♀♀, Katchi, Tanohata Vil., Iwate Pref., Honshu, 12. vii. 1963, I Hiura leg. 1♀, Moura Coast, Natsudomari, Aomori Pref., Honshu, 10. vii. 1963, I. Hiura leg. 1♂, Okubo, Jinryo-mura, Tokushima Pref., Shikoku, 20. ii. 1953, I. Hiura leg.

Subfamily PSYLLINAE

Psylla abieti KUWAYAMA, 1908

Specimen examined: 1♂, Hachimantai, Akita Pref., Honshu, 4. viii. 1959, I. Hiura leg.

Psylla albigena Y. MIYATAKE, 1964

Specimen examined: 1♀, Hirayu Spa, Gifu Pref., Honshu, 13. vii. 1960, I. Hiura leg.

Psylla alni (LINNÉ 1758)

Specimen examined: 1♀, Kotakezawa-deai—Futamata, alt. 850-950 m., Shimashima V., Nagano Pref., Honshu, 11. vii. 1960, I. Hiura leg. (on "Hannoki" - *Alnus japonica* STEUD.).

Psylla coccinea KUWAYAMA, 1908

Specimens examined: 2♂♂ 3♀♀, Yazima (200 m.), Akita Pref., Honshu, 29. vii. I. Hiura leg. 2♂♂, Hichihime-daira, foot of Mt. Tateyama, Toyama Pref., Honshu, 12. x. 1959, I. Hiura leg. 5♂♂ 4♀♀, Iwase, Kawachi-nagano, Osaka Pref., Honshu, 18. vi. 1962, I. Hiura leg. 2♂♂ 2♀♀, Mt. Iwawaki, Osaka Pref., Honshu, 22. v. 1960, I. Hiura leg. 2♂♂ 2♀♀, Shimanotani, Kawachi-nagano, Osaka Pref., Honshu, 12. vi. 1962, I. Hiura leg. 1♀, Sasayuri-dani, Mt. Izumi-Katsuragi, Osaka Pref., Honshu, 18. vi. 1961, I. Hiura leg. 1♀, Kobuka—Chihaya-dô, Kawachi-nagano, Osaka Pref., 17. vii. 1962, I. Hiura leg. 1♂ 1♀, Todoroki-taki, Kaifu-gun, Tokushima Pref., Shikoku, 23. x. 1962, I. Hiura leg. 1♂, Okuura, Tomooku, Kaifu-gun, Tokushima Pref., Shikoku, 25. x. 1962, I. Hiura leg. 2♂♂ 3♀♀, Yamakawa, Kagoshima Pref., Kyushu, 24. v. 1953, I. Hiura leg.

Usually, the body of this species is brightly red in coloration as well indicated by the Japanese name, "Beni-kijirami", which means "Red-psyllid", shows. In case of a newly-emerged form, however, the body looks green to olive in colour. But, it may be easily distinguishable from the others in the genal cones, which are somewhat short, divergent and blunt apically, the antennae stained with white and black alternately in the apical half. Besides, it is expected to be found on the plants of Lardizabalaceae that are the host plants of this species in that case.

Psylla fatsiae JENSEN, 1957

Specimen examined: 1♀, Cape Sata, Kagoshima Pref., Kyushu, 29. v. 1953, I. Hiura leg.

Psylla fulguralis KUWAYAMA, 1908

Specimens examined: 1♂ 1♀, Cape Sata, Osumi, Kagoshima Pref., Kyushu, 29. v. 1953, I. Hiura leg.

Psylla hakonensis KUWAYAMA, 1908

Specimens examined: 2♀♀, Mt. Shibagoya, Jinryo, Tokushima Pref., Shikoku, 20. ii. 1953, I. Hiura leg.

From the fact that this species was collected in February in Shikoku, it can be imagined that this species hibernates in the form of the adult.

Psylla hederae Y. MIYATAKE, 1964

Specimens examined: 14♂♂ 16♀♀, Shimanotani, Kawachi-nagano, Osaka Pref., Honshu, 12. vi. 1962, I. Hiura leg.

This is the first record of this species from Honshu in Japan. Unfortunately, the host record could not be obtained.

Psylla hexastigma HORVÁTH, 1899

Specimens examined: 1♀, Okubo, Jinryo-mura, Tokushima, Pref., Shikoku, 20. ii. 1953, I. Hiura leg. 1♀, Uetsuno, Jinryo-mura, Tokushima Pref., Shikoku, 28. viii. 1953, I. Hiura leg. 1♀, Kôrasan, nr. Kurume, Fukuoka Pref., Kyushu, 21. vi. 1952, I. Hiura leg.

From the fact that this species was collected in February in Shikoku, it is easily presumable that this species hibernates in the form of the adult, which is dark brown in colour, instead of fresh green in the summer form.

Psylla jamatonica KUWAYAMA, 1908

Specimens examined: 1♂ 1♀, Iwase, Kawachi-nagano, Osaka Pref., Honshu, 18. vi. 1962, I. Hiura leg. (summery form). 3♀♀, Sasayuri-dani, Mt. Izumi-Katsuragi, Osaka Pref., Honshu, 18. vi. 1961, I. Hiura leg. (summery form). 1♂ 1♀, Kôrasan, nr. Kurume, Fukuoka Pref., Kyushu, 21. vi. 1952, I. Hiura leg. (autumnal form).

Psylla japonica KUWAYAMA, Jr., 1955

Specimens examined: 1♂, Dosu Pass, Sawadani-mura, Tokushima Pref., Shikoku, 4. viii. 1956, I. Hiura leg. 1♂, 2. viii. 1957; 1♀, 1. viii. 1957; Mt. Gomanodan, Wakayama Pref., Honshu, Y. Shibata leg. 1♀, Mt. Hira, Shiga Pref., Honshu, 3. vi. 1957, O. Sato leg. 3♂♂ 4♀♀, Hirayu Spa, Gifu Pref., Honshu, 13. vii. 1960, I. Hiura leg.

Psylla kiushuensis KUWAYAMA, 1908

Specimens examined: 1♂, foot of Mt. Ibuki, Shiga Pref., Honshu, 10. v. 1959, I. Hiura leg. 2♀♀, Cape Sata, Kagoshima Pref., Kyushu, 29. v. 1953, I. Hiura leg.

Psylla morimotoi Y. MIYATAKE, 1963

Specimens examined: 1♂ 1♀, Hirayu Spa, Gifu Pref., Honshu, 13. viii. 1960, I. Hiura leg.

Psylla sorbicola Y. MIYATAKE, 1963

Specimen examined: 1♂, Midagahara, Mt. Tateyama, Toyama Pref., Honshu, 11. x. 1959, I. Hiura leg. (one of the paratypes of *sorbicola*).

Psylla toroenensis KUWAYAMA, 1908

Specimens examined: 3♂♂ 8♀♀, Kôrasan, nr. Kurume, Fukuoka Pref., Kyushu, 21. vi. 1952, I. Hiura leg. 1♂ 3♀♀, Shimobunkamiyama-mura, Tokushima Pref., Shikoku, 14. iii. 1953, I. Hiura leg. 1♀, Okubo, Jinryo-mura, Tokushima Pref., Shikoku, 20. ii. 1953, I. Hiura leg.

Psylla vaccinii Y. MIYATAKE, 1964

Specimen examined: 1♂, Okubo, Jinryo-mura, Tokushima Pref., Shikoku, 20. ii. 1953, I. Hiura leg.

Subfamily TRIOZINAE

Trioza berchemiae SHINJI, 1938

(Fig. 2, A-G; Fig. 3)

Trioza berchemiae Shinji, 1938, Ins. World 42: 366.

Specimens examined: 1♂, Asamushi Spa, Aomori Pref., Honshu, 11. vii. 1963, I. Hiura leg. 1♂, Uge Coast, Taneichi-cho, Iwate Pref., Honshu, 14. vii. 1963, I. Hiura leg.

♂♀: General colour orange to reddish brown with a pair of obscure, longitudinal stripes on dorsum of thorax; thorax with a broad band of bright red or orange colour laterally; eyes brown to russet; ocelli yellow; antennae light brown with segments I and II reddish brown, apices of segments IV and VI dark brown, with two apical segments black; genal cones distinctly white; legs light brown, with femora and coxae tinged with dark brown, with apical spines of posterior tibia black. Abdomen conspicuously bicolorous, with tergites reddish brown and darkened along each segments, with white scale medially in distal half, with sternites cream white; male proctiger and forceps reddish brown, black apically, subgenital plate white; in female genitalia dorsal valve yellowish brown to orange, black in apical half, ventral valve white, black

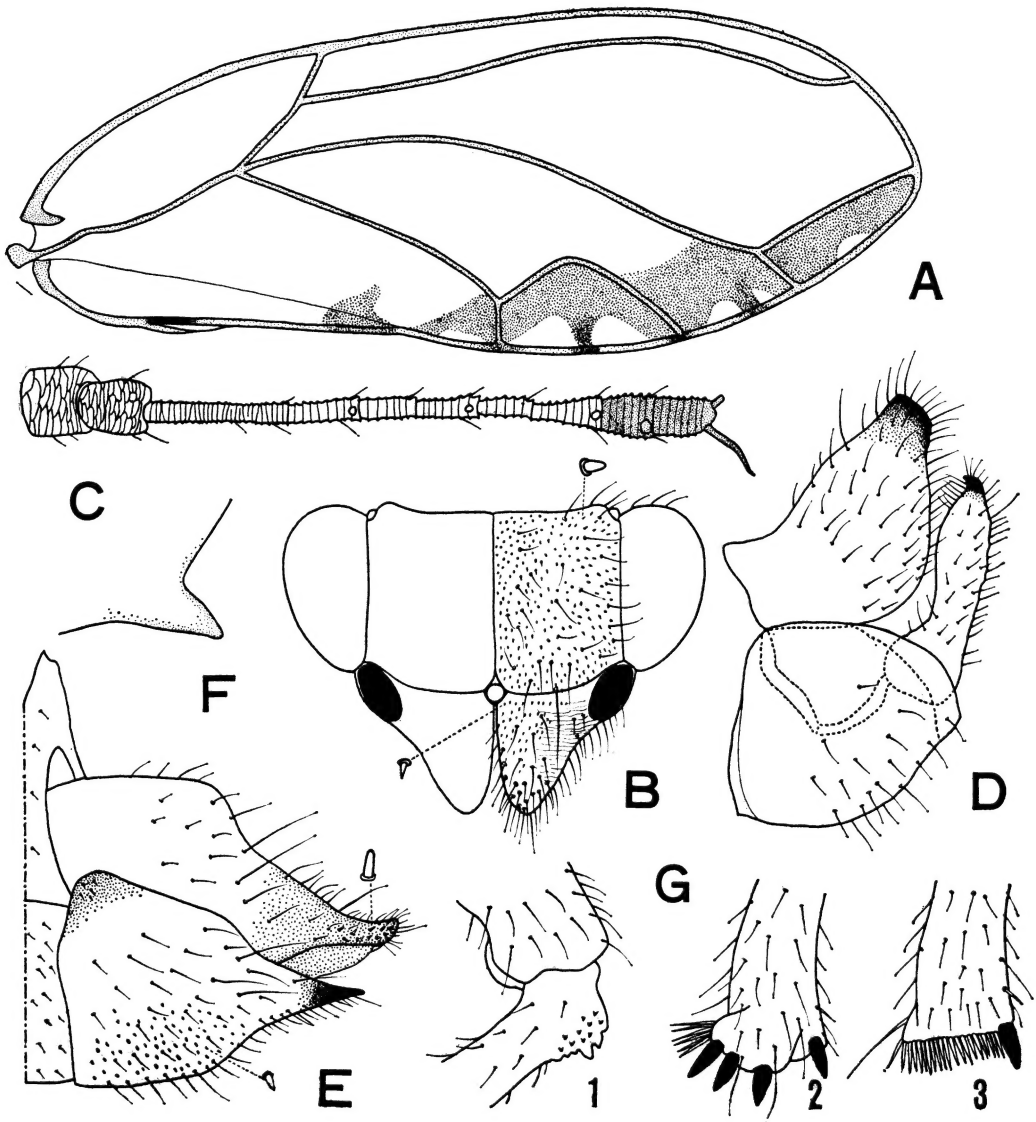

Fig. 2. ***Trioza berchemiae*** SHINJI.

A. Forewing. B. Head (antennae excluded), frontal aspect.
C. Antenna. D. Male genitalia, lateral aspect.
E. Female genitalia, lateral aspect. F. Meracanthus.
G. Posterior tibia: 1. basal spur, 2. inner side of apex, 3. outer side of apex.

apically. Forewings transparent, with veins white, with numerous microscopical dots on membrane, with a remarkable submarginal band of dark brown along posterior margin from medial cell to apex of clavus as shown (Fig. 2, A), with brown macula somewhat quadrilateral near end of clavus, posterior marginal vein with a black spot near midpoint between base of forewing and apex of clavus, submarginal band with 6 transparent areas along posterior margin as follows: 1 in medial cell, 2 between M_{3+4} and Cu_1, 2 in cubital cell, and 1 between Cu_2 and clavus.

Head (Fig. 2, B) small, nearly as wide as thorax, deflexed; vertex in frontal aspect quadrate, much longer than half as long as wide on median line, pubescent, with posterior margin scarcely incised, with 2 deep grooves on either side of median line, with 1 depression on median line near frontal ocellus; genal cones distinctly shorter than vertex, with long pubescence, almost parallel to each other and slightly divergent apically, with a blunt apex, slightly below plane of vertex; eyes small, rather flat hemispherical; frons covered with genae, not visible; antennae quite short, fully as long as width of head or shorter, with scape and pedicel stout, with one long and one short apical spines, with 4 large sensoria at apices of segments IV, VI, VIII and IX, relative length of antennal segments as follows: 3:3:5:3:2:2:2:2.5:2:2 (Fig. 2, C).

Thorax long and elongate, strongly arched, rugose, pubescent throughout; pronotum about 1/4 as long as vertex, slightly produced caudad; praescutum long, about 14×15; scutum crab-shell like, distinctly shorter than praescutum; scutellum large, 1/2 as long as scutum. Legs short but massive, heavily pubescent; posterior tibia with two rather distinct basal spurs (Fig. 2, G–1), with 1 outer and 3 inner apical spines (Fig. 2, G–1 & G–2); proximal segment of posterior tarsus without apical spines; meracanthus short, projected ventro-caudad, subacute apically (Fig. 2, F). Forewings long and elongate, acute at apex, about 2.7 times as long as wide; veins with short hairs; Rs very long, reaching nearly apex of wing, strongly sinuate towards anterior margin; M-stem abruptly downcurved in the apical half; M_{1+2} markedly long, over 3 times as long as M_{3+4}; Cu_2 nearly perpendicular to posterior margin; clavus ended far from apex of Cu_2; medial cell (second marginal cell) very elongate (Fig. 2, A). Hind wings normally developed, about 0.7 times as long as forewings. Abdomen (excl. genital segments) short, half as long as thorax, densely pubescent ventrally and bare dorsally.

Male genital segments (Fig. 2, D) very small, shorter than half as long as the rest of abdomen; proctiger in lateral aspect comparatively higher than forceps, rather hemispherical, with anterior margin straight and posterior margin strongly convex caudad, pubescent; forceps in lateral aspect rather slender, with anterior margin sinuate and posterior margin straight, with an acute and heavily sclerotized apex curved slightly cephalad, with strong hairs on both dorsally and inwards, in caudal aspect arched to

subacute and touched apices; subgenital plate small, subtriangular, lower than proctiger, with dorsal margin sinuate, with dense short hairs on the surface. Female genital segments (Fig. 2, E) small, 3/4 as long as the rest of abdomen; dorsal valve in lateral aspect a little longer than ventral, attenuate in apical portion, apex somewhat obliquely truncate, with numerous hairs, anus unusually large, in larger diameter almost as long as the rest of dorsal margin of dorsal valve; inner valve shorter than ventral; ventral valve in lateral aspect much higher than dorsal, slightly shorter than dorsal, apical portion slender to sharp tip, with dense pubescence.

Length of body ♂ 1.8-1.9 mm. ♀ 2.0-2.2 mm. (to tip of folded wings ♂ 3.4 mm., ♀ 3.5-3.7 mm); length of forewing ♂ 2.7-2.8 mm., ♀ 2.8-2.9 mm. (width ♂ 1.0 mm., ♀ 1.0 mm); length of antenna ♂ 0.6 mm., ♀ 0.55-0.6 mm.

(The descriptions and the illustrations were made basing upon the specimens from Akita Pref., Aomori Pref.. and Nagano Pref. in the author's collection.)

This species resembles *Trioza minuta* var. *arizonae* AULMANN, 1912 from North America in the wing maculation, but may be separated from the latter in having Rs and M of the forewing conspicuously sinuate, the cubital cell much larger, the dorsal valve of female genitalia distinctly attenuate in apical portion and the proctiger of male genitalia without lobate caudal projection.

Host plant: "Kuma-yanagi" - *Berchemia racemosa* SIEB. et ZUCC. [Rhamnaceae]. The numerous examples of galls of *Trioza berchemiae* SHINJI on the host plant were collected at Numafukuro, Tanohata-mura, Iwate Pref., Honshu on July 13th, 1963 by I. Hiura (preserved in alcohol). Those, however, had been abandoned and no nymphs were left at that time. The simple and rather tentative description of the gall is given below.

Gall (Fig. 3): In case of full-grown one, each usually somewhat tongue-shaped

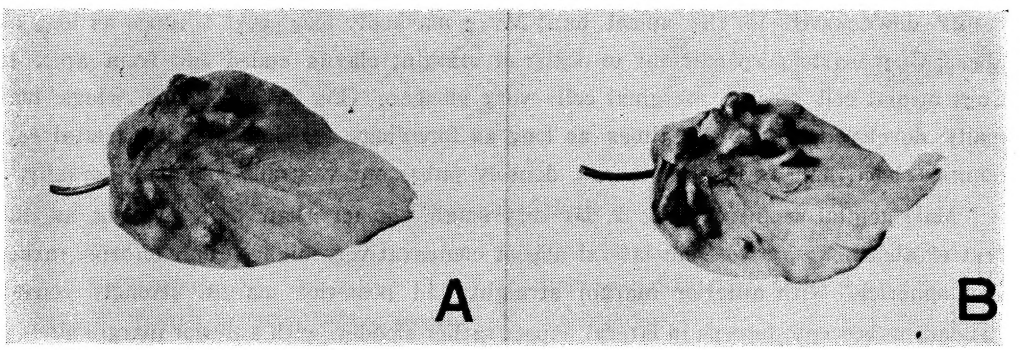

Fig 3 Galls of ***Trioza berchemiae*** SHINJI on leaves of *Berchemia racemosa* SIEB. et ZUCC.: A. dorsal aspect, B. lateral aspect.

and flattened, sometimes conical or rounded or pustuloid, projected on the upper side of the leaves along the veins, with a slit-like opening on the under side of the gall, light greenish brown and tinged with red near top; 3.5–4.5 mm. in larger diameter, 1.5–2.5 mm. in height, 1.2–2.0 mm. in thickness. Maximum number of galls on one leaf seems to be 15 to 20, usually about 10 in number. Sometimes, two or more galls are combined together and developed into a large one.

Trioza brevifrons KUWAYAMA, 1910

Specimens examined: 1♂ 1♀, Minaminoma, Jinryo, Tokushima Pref., Shikoku, 20. ii. 1953, I. Hiura leg.

Originally, this species was described from Formosa and has not been recorded from Japan proper. The Japanese specimens possess the genal cones slightly longer.

Trioza chenopodii REUTER, 1876

Specimens examined: 1♂ 5♀♀, Nishijima, Ejima Is., Hyogo Pref., Honshu, 30. x. 1961, Y. Shibata leg.

The Japanese specimens were compared with the British ones loaned from the British Museum (Nat. Hist.). The author could find no differences between them.

Trioza remota FÖRSTER, 1848

Specimen examined: 1♀, Mt. Iwawaki, Osaka Pref., Honshu, 22. v. 1960, I. Hiura leg.

This specimen was found sticked on "Mochi-tsutsuji" - *Rhododendron macrosepalum* MAXIM. on the ridge area of the mountain.

Trioza viridula (ZETTERSTEDT, 1828)

Specimens examined: 1♂, Hirayu Spa, Gifu Pref., Honshu, 13. vii. 1960, I. Hiura leg. 1♂ 1♀ Midagahara, Mt. Tateyama, Toyama Pref., Honshu, 11. x. 1959, I. Hiura leg.

Epitrioza mizuhonica KUWAYAMA, 1910

Specimens examined: 1♂, Kôrasan, nr. Kurume, Fukuoka Pref., Kyushu, 21. vi. 1952, I. Hiura leg. 1♀, Cape Sata, Osumi, Kagoshima Pref., Kyushu, 25. v. 1953, I. Hiura leg. 1♀, Uetsuno, Jinryo-mura, Tokushima Pref., Shikoku, 28. ii. 1953, I. Hiura leg.

Stenopsylla nigricornis KUWAYAMA, 1910

Specimens examined: 1♂ 1♀, 26. v. 1953; 1♂ 2♀♀, 29. v. 1953; 2♀♀, 30. v. 1953; Cape Sata, Osumi, Kagoshima Pref., Kyushu, I. Hiura leg.

Trichochermes bicolor KUWAYAMA, 1910

Specimen examined: 1♀, Shirakuchi-mine, Mt. Gomanodan, Wakayama Pref., 3. viii. 1957, I. Hiura leg.